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Behavioral correlates of directly and
indirectly measured achievement motivation.

by
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Several recent studies (6, 10) have demonstrated the value of measuring motivational strength indirectly by content analysis of imaginative stories. In fact, measures of achievement motivation obtained in this way have proven useful in predicting widely different kinds of behavior--e.g., performance, learning, memory, perception, etc. The more or less conscious assumption of this research has been that such an elaborate method of assessing an individual's motivation is somehow superior as far as predicting behavior is concerned to simply asking a subject to describe or rate his own motives. Yet there has been no systematic comparison of these two methods of assessing human motivation which would demonstrate how persons who score high by one measure or the other would differ from each other, if at all. While it may be generally assumed that direct questioning of a subject about his motivation is not likely to yield a useful index of motivational strength, partly because subjects are known to rationalize in motivational matters, and partly because such measures have not in the past correlated with a large number of variables, nevertheless it would seem highly desirable to check this assumption and to try and discover whether subjects who describe themselves as strongly motivated for achievement do behave differently from subjects whose projective records show that they have strong needs for achievement (n Achievement). Previous results have

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shown that self-ratings on achievement drive do not correlate significantly with n Achievement scores derived from stories subjects write (6, p. 243). This would suggest that we might find some differences in behavior of subjects who score high on one measure or the other.

As to what these differences should be, we have no really adequate grounds for setting up specific hypotheses. The nearest thing to a basis for a hypothesis is McClelland's argument (5, p. 451 ff.) that motives are formed early in life and may therefore be imperfectly verbalized or symbolically represented in the subject's consciousness. This suggests that those who do verbalize their achievement desires may have developed such conscious needs somewhat later in life, possibly in response to adult pressures for becoming successful. In other words, these people may have been taught consciously to value achievement. We shall, therefore, refer to this consciously recognized motive as y Achievement to distinguish it from n Achievement, which is a score derived indirectly from content analyses of creative stories. If this general line of reasoning is correct, subjects with high y Achievement should be more responsive to authoritative opinions as to what constitutes "correctness" or success, and in general should be somewhat more conformist than subjects with high n Achievement who, as we know from previous work, (6, p. 287) tend to be individualistic and unwilling to be pressured into conformity. On the other side of the picture we would expect, on the basis of previous research, that subjects with high n Achievement would tend to do better in tasks in which they could compete with an internalized standard of excellence whereas subjects high in y

Achievement should not do significantly better in such situations since they do not involve the dimension of conformity, or following the lead of expert authority, etc.

The two measures of achievement motivation. The n Achievement score was obtained in the standard manner (6) by collecting six stories written by subjects in a group to briefly exposed slides. Scoring was done blind by System C and in nearly all cases was checked by an independent observer. Scoring reliability coefficients were at least .89. Subjects were college males except where otherwise stated.

The y Achievement scores were obtained by summing the subject's responses to the following nine questionnaire items, all but one of which come from Murray's original study (8).

1. I enjoy work as much as play.
2. I nearly always strive hard for personal achievement. (This was the one item which did not come from Murray; it was adapted from Lowell, (6, p. 243)
3. I feel that my future peace and self respect depend upon my accomplishing some notable piece of work.
4. I set difficult goals for myself which I attempt to reach.
5. I enjoy relaxation wholeheartedly only when it follows the successful completion of a substantial piece of work.
6. I work like a slave at everything I undertake until I am satisfied with the results.
7. When a man is no longer anxious to do better than well, he is done for.

8. I feel that nothing else which life can offer is a substitute for great achievement.

9. Only ambition will bring a man's mind into full activity.

The subject checked on a graphic rating scale at the left the extent of his agreement with each of these sentiments. The items were distributed throughout a much longer questionnaire which covered a number of other matters. Point biserial correlations were run between each of these items and the total score for the remaining items in an a priori y Achievement scale consisting of twelve items. All of the nine listed correlated at least $.30$ with the remainder ($N=82$), whereas three other items, two from Murray's original scale, were dropped because their point biserial correlations with the others were insignificant (see deCharms, 4).

None of the individual y Achievement items correlated significantly with the total n Achievement score, although there was a small and barely significant or positive correlation between total y Achievement score and n Achievement score ($N=78$, $\rho=.23$, $p<.05$). The relationship between the two measures was examined for curvilinearity but none was found.

Attitudes toward authority. The general hypothesis is that subjects with high y Achievement will be more easily influenced by expert authority. Indirect evidence on this point is to be found from the correlations of the y Achievement score with answers to other items on the questionnaire, some of which came from the well-known F-Scale (which measures authoritarianism). Four of the seventeen correlations turned out to be significant at or about the 5% level, with the following results. The person

with high y Achievement:

- a. tends to feel that "no sane, normal, decent person could ever think of hurting a close friend or relative".
- b. feels that young people should settle down and get over rebellious ideas.
- c. feels that youth needs discipline and should work for family and country.
- d. tends to prefer the completed and polished to the unfinished and imperfect.

None of these items or any others in the questionnaire correlated significantly with the n Achievement score. These results strongly suggest that there should be a correlation between y Achievement and the total F-Scale. On another group of 30 subjects on whom the total F-Scale score was available, a chi square analysis revealed a positive relationship ($p=.04$), a fact which contrasts with Brown's inverse correlation between n Achievement score and F-Scale score (3).

More direct results on the reaction to authority comes from an art preference test conducted as part of a regular class in Art History. The subjects were shown slides of 20 paintings by artists from Velasquez to Copley, before the professor had discussed them in class and were asked to indicate their liking or disliking for the painting on a seven-point scale, from +3 for pleasing to -3 for very displeasing, with a zero score not permitted and assigned only if the subject failed to respond to the picture in question. Six class periods later, after 19 of the 20 paintings had been treated in class, subjects were again asked to rate the pictures.

The professor also indicated on a scale of $+3$ to -3 (with no zero point) the extent to which he thought his treatment of a particular painting had been favorable or unfavorable. Mean favorableness scores were computed for each picture before and after discussion in class, and it was found that 12 of the 19 treated paintings had shifted in the direction of the professor's treatment, five of them significantly, a fact which shows that for the class as a whole he was considered an expert authority, although there were two instances in which the score shifted significantly in the direction opposite to his treatment of the pictures in question.

Thirty-one of the subjects were present both for the pre-test and post-test, although, of course, it was not certain that all of them had been at all of the class meetings in between. It was decided to omit all those pictures which the art historian had been neutral or ambivalent about (i.e., those he rated $+1$, since no zero was possible) because inspection of the class shifts in opinion showed that for these pictures he had had no significant "prestige" effects on their views. Then a score was computed for each individual which was the total of the 12 remaining pictures in which he had moved his opinion in the direction of the treatment given by the professor. This score correlated significantly with y Achievement score ($\rho = .39$, $p < .04$). Its correlation with x Achievement score was insignificant ($\rho = .08$). A similarly positive correlation was found between y Achievement and the amount of shift in opinion for each individual, but it did not quite reach the 5% level of significance. In general, the evidence seems to support the hypothesis that

subjects with high y Achievement tend to be more responsive to authorities who tell them what is excellent and what is not.

Impressions of persons. A further consideration of these two types of motivation suggested the hypothesis that subjects with high y Achievement might be more impressed by lack of success in a person whereas subjects with high n Achievement might be more impressed by his successfulness. Asch (2) has provided us with a technique for testing the saliency of these two characteristics separately. The subjects listen to a list of characteristics supposedly describing a person, they then write a brief personality sketch of that person, and finally fill out an adjective check-list in which they are to mark those adjectives which they think might further describe the person in question. DeCharms (4) followed this procedure, describing six different persons for classes of elementary psychology students. Two of his descriptions were as follows:

Friendly, frank, unsuccessful, impulsive, idealistic, witty.

Pessimistic, aloof, successful, suspicious, assertive.

It will be noted that the attribute "unsuccessful" is imbedded in the first instance in a generally favorable context, while in the second, the attribute "successful" is imbedded in a generally unfavorable context. The question was whether the presence of either one of these single attributes would influence differently the perception of the person formed by subjects with high n Achievement or high y Achievement.

The results for the person described favorably but as unsuccessful are given in Table 1. The measure used was the number of positive traits

TABLE 1
MEAN POSITIVE TRAITS CHECKED TO DESCRIBE
UNSUCCESSFUL "MAN" BY SUBJECTS ABOVE AND
BELOW THE MEDIAN IN x ACHIEVEMENT AND y ACHIEVEMENT

	Group I*		Group II*		Group III*		Overall	
<u>x</u> Achievement	N	Mean	N	Mean	N	Mean	Mean	F
Ss above the median**	15	6.80	15	3.80	14	3.57		
Ss below the median	10	5.10	12	3.75	15	3.60		
Difference		1.70		1.05		-.03	4.57	
<u>y</u> Achievement								
Ss above median	8	4.38	12	3.08	12	3.25		
Ss below median	14	6.64	9	4.44	14	3.93		
Difference		2.26		1.36		-.68	-1.43	< .02
Diff. between diffs.		13.96		11.41		1.65	12.00	< .02

* Groups represent three replications with some variations in procedure of the basic experiment.

** Median of all groups combined.

checked on the adjective check-list as describing the person in question. In the first two groups there were 15 positive traits in the check-list and only five negative ones. In the third group an effort was made to achieve more of a balance by providing 10 positive and 10 negative traits. However, if anything, this seemed to diminish the effect even more, which is, in general, for the subjects with high y Achievement to check fewer positive traits as describing this man than the subjects with low y Achievement. Nevertheless, the result holds up throughout the three essentially independent replications of the experiment despite this and other minor modifications in procedure, and the over-all difference, by itself or as contrasted with the n Achievement breakdown, is significant at less than the 2% level. Replications in this case are especially important because differences for other personality descriptions showed up in single groups which disappeared when tested again. One of the most disappointing of these was the marked evidence in Group I that the subjects with high n Achievement checked significantly more positive adjectives to describe the "successful" man with otherwise negative characteristics than did the subjects with low n Achievement, while there was no such differential for the high and low y Achievement groups. However, this result was not repeated in the other two groups and may, therefore, have been due to chance although there were enough procedural changes in Groups II and III possibly to explain the disappearance of the effect on other grounds.

In short, the evidence supports the hypothesis that for subjects with high y Achievement "unsuccessful" is an attribute which tends mark-

edly to influence their impression of a person whereas this is not true of subjects with high n Achievement. This is clearly in line with the general notion that subjects who describe themselves as ambitious and achievant may do so for defensive reasons: they have perhaps been under some authoritarian pressure from their parents to be ambitious and the resultant motive which has originated in external sources shows itself primarily as a fear of being unsuccessful or at least as a disregard for those who are unsuccessful. This general picture is in many ways similar to the description given in The Achievement Motive (6) of the subjects with moderate n Achievement who appear to fear failure so that the only surprising thing about these results is that the subjects with moderate n Achievement do not score significantly higher on y Achievement.

Memory for content. So far we have concentrated largely on the behavioral correlates of y Achievement. Those of n Achievement are better known although no data have as yet been reported where a direct comparison of its effects with those of y Achievement have been made. As an instance of such a comparison we may refer to the data in Table 2 which are from a study by Reitman (9).

The recall scores in the upper part of the table refer to intentional recall of stories read to the subject at the beginning of a class period. That is, the subjects knew they were to recall the stories later and listened to them with intent to remember. The recall scores are based on a system which gave a weight of 1 for every word recalled verbatim and a weight of

TABLE 2

MEAN RECALL SCORES FOR STORIES READ ALOUD TO
OR WRITTEN BY SUBJECTS WITH LOW, MODERATE, AND
HIGH n ACHIEVEMENT AND y ACHIEVEMENT SCORES

Recall after 40 minutes of achieve- ment stories read to the subjects	Motivational Strengths					
	Low		Moderate		High	
	N	Mean recall	N	Mean recall	N	Mean recall
Story 1*						
<u>n</u> Achievement	9	8.9	11	13.9	5	12.3
<u>y</u> Achievement	8	12.0	8	10.6	9	13.3
Story 2**						
<u>n</u> Achievement	8	11.9	15	14.9	6	12.5
<u>y</u> Achievement	7	13.3	6	13.0	10	13.9
Recall of six stories written by the Ss 9 days before						
<u>n</u> Achievement	7	11.5	14	13.0	6	14.7
<u>y</u> Achievement	9	13.1	6	13.8	9	13.7

* Story 1 is Story 2-2 in Appendix 1 of The Achievement Motive (6, p. 335) and was read along with a story containing very little achievement imagery to one group of subjects.

** Story 2 is Story 2-1 (modified slightly) in Appendix 1 of The Achievement Motive (6, p. 336) and was read along with a different non-achievement story to a different group of subjects.

2 for every "gist" unit in which the thought of the original story was intact although expressed in different words. The n Achievement and v Achievement score distributions were broken into thirds by choosing a middle group of subjects whose scores deviated approximately plus or minus 1/2 Sigma unit from the mean. For intentional short-term recall, the subjects with moderate n Achievement recalled significantly more of the achievement-related story in both groups. That is, if the middle group is compared with the low and high groups combined, its mean recall score is significantly higher than the mean recall score for the rest of the subjects both for Story 1 in the first group and Story 2 in the second group ($t=2.27$, $p<.05$; $t=2.51$, $p<.02$, respectively). In short, the finding is repeated significantly in two independent replications of the experiment. On the other hand, there are no significant recall differences among the v Achievement groups or for the non-achievement stories among either the v Achievement or n Achievement groups.

In the lower half of Table 2 similar recall scores are presented when the subjects were asked unexpectedly to recall the stories they had written nine days previously in order to obtain an n Achievement score for this experiment. That is, they were shown the original slides for one-half second and asked to write again as accurately as possible the stories they had written previously to those slides. Under these conditions where there had been no intent to recall and when the material in question had been written by the subjects themselves rather than read

to them, there is a linear relationship between n Achievement score and amount of material recalled ($r=.48$, $p<.02$ with original story length partialled out) and again no relationship as far as y Achievement is concerned. It should be added that this effect had apparently disappeared after 18 days as shown by Reitman's attempt to check the finding at this recall interval.

These results demonstrate in the first place that n Achievement is clearly related to performance variables as shown previously and that y Achievement is not. Furthermore, they are, in general, consistent with previous attempts to relate n Achievement to performance in that they show that the subjects with moderate n Achievement tend to show anxiety in performance situations, an anxiety which, on the one hand, may tend to interfere with efficient performance while, on the other, it increases the quantity of responses produced (6, p. 226). The subjects with high n Achievement, on the other hand, tend to be better at recalling the material which they themselves have produced, a fact which is in general consistent with the notion that n Achievement involves a kind of inner- or self-orientation as contrasted with an outer- or other orientation.

Performance and learning. Previous studies have shown that n Achievement leads to better performance and sometimes to faster learning (6). Do subjects who consider themselves ambitious also perform better in similar situations: The only case in which we have n Achievement, y Achievement, and performance scores on the same subjects involves a study of college women conducted by Morrison (7). As in the case of the college men,

there is in this group of college women a low positive but here insignificant correlation between n Achievement and y Achievement scores ($r=.09$, $p<.50$). Questions have been raised about the validity of n Achievement scores for women because the achievement imagery in their stories does not increase as a result of experimental arousal in the same way it does for men. However, there is evidence that the scores are valid anyway, even when obtained from stories written to standard male pictures, to the extent that validity is indicated by superior performance in an anagram test (6, p. 176). The data in Table 3, gathered by Morrison, support this view even more strongly. They represent output scores on the Scrambled Words task used with college men by Lowell (6, p. 230), broken down here to compare roughly the top third with the bottom two-thirds of the n Achievement and y Achievement distributions; this was done because the women with moderate n Achievement performed almost exactly like those in the lowest third of the n Achievement distribution. A two-way breakdown at the mean gives the same, though less significant, results because some of the lower scores of the middle n Achievement Ss are averaged with those from the upper group.

(Insert Table 3 here or near here.)

The Table shows that the women with the highest achievement motivation consistently do better on the Scrambled Words task than women with lower achievement motivation, whereas there is no difference between those women who consider themselves very ambitious and those who do not. There is also a slight tendency for the high n Achievement group to show a greater

TABLE 3
 MEAN OUTPUT OF SCRAMBLED WORDS PER FORTY-MINUTE
 PERIOD FOR FEMALE SUBJECTS IN THE UPPER THIRD
 AND LOWER TWO-THIRDS OF THE n ACHIEVEMENT AND
v ACHIEVEMENT SCORE DISTRIBUTIONS

	N	1	2	3	4	5	Total
<u>n</u> Achievement							
(male pictures)							
Upper third	13	19.69	18.76	22.77	21.99	24.31	107.51
Lower two-thirds	35	13.49	15.57	16.23	16.54	17.34	79.17
Difference							28.34
p							<.01
<u>v</u> Achievement							
Upper third	15	15.53	14.47	17.20	18.80	19.67	85.66
Lower two-thirds	30	15.37	17.23	18.60	17.87	19.47	88.53
Difference							-2.87
p							insignificant

gain from the first to the last period, but the difference in gains is insignificant. Since the performance scores for women with high and low achievement motivation are similar to those obtained by Lowell for men, we may feel justified in concluding that the n Achievement score will predict performance in both men and women, whereas the y Achievement score, in all likelihood, will not, in either case. As one further index of the validity of female n Achievement scores, Morrison found that the college women who held offices tended to have significantly higher n Achievement scores (biserial tau = .28, $p < .01$). The relationship for y Achievement was insignificant. It is perhaps worth noting in passing that he also found that n Achievement scores derived from stories written to pictures of career women would not predict performance in the present instance. The picture cues have to be of men, or of women in non-achievement situations, if the scores are to be valid indicators of performance.

Results from a number of different experiments have been collected to show that measuring achievement motivation directly by asking the subject or indirectly by content analysis of his stories tends to produce two different scores which signify different things as far as the rest of the subject's behavior is concerned. A consciously high desire for achievement tends to be associated with conformity, a high valuation on expert authority, and a low valuation on unsuccessful people. A high need for achievement as measured indirectly through projective material tends to be associated with internalized standards of excellence which lead to superior performance of various sorts in task situations.

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